WHAT IS CLAIMED IS:

1. An apparatus for providing support between a first structure and a second structure, comprising:

a supporting member mounted to the first structure and second structure, the supporting member having positive stiffness with respect to a direction that differs from a support direction of the apparatus;

a first section having at least one magnetic member, the first section being coupled to the first structure; and

a second section having at least one magnetic member, the second section being coupled to the second structure; wherein

the first and second sections present negative stiffness caused by magnetic force, thereby canceling at least a part of the positive stiffness of the supporting member.

2. The apparatus of claim 1, wherein the supporting member has a bellow that includes an airtight cavity, and the airtight cavity is pressurized.

3. The apparatus of claim 2, wherein the first and second sections are mounted within the cavity of the bellow.

4. The apparatus of claim 3, further comprising a pressurizing mechanism that controls pressure within the cavity of the bellow.

5. The apparatus of claim 2, wherein

the first section has a first cylindrical magnetic member,

the second section has a second cylindrical magnetic member, and

the first and second cylindrical magnetic members face with each other at an end thereof at the neutral position.

6. The apparatus of claim 5, wherein each of the first and second cylindrical magnetic members includes a retentive magnetic material.

7. The apparatus of claim 2, wherein

the first section has a first cylindrical magnetic member,

the second section has a second cylindrical magnetic member, and

the first cylindrical magnetic member is provided within the second cylindrical magnetic member.

8. The apparatus of claim 7, wherein each of the first and second cylindrical magnetic members includes a retentive magnetic material.

9. The apparatus of claim 7, wherein the first cylindrical magnetic member includes a retentive magnetic material, and the second cylindrical magnetic member includes a non-retentive magnetic material.

10. The apparatus of claim 2, wherein

the first section has a first cylindrical magnetic member,

the second section has second and third cylindrical magnetic members, and

the first cylindrical magnetic member is provided within the second and third cylindrical magnetic members.

11. The apparatus of claim 10, wherein the first cylindrical magnetic member includes a retentive magnetic material, and each of the second and third cylindrical magnetic members includes a non-retentive magnetic material.

12. The apparatus of claim 2, wherein

the first section has a first cylindrical magnetic member,

the second section has second, third, fourth and fifth cylindrical magnetic members, and

the first cylindrical magnetic member is provided within the second, third, fourth and fifth cylindrical magnetic members.

13. The apparatus of claim 12, wherein

each of the first, second and third cylindrical magnetic members includes a retentive magnetic material,

the first, second and third cylindrical magnetic members have a first, second and third direction of magnetic poles, respectively,

the first, second and third direction of magnetic poles are the same, and

each of the fourth and fifth cylindrical magnetic members includes a non-retentive magnetic material.

14. A method of providing support between a first structure and a second structure, comprising:

providing a supporting member mounted to the first structure and second structure, the supporting member having positive stiffness with respect to a direction that differs from a support direction of the apparatus;

coupling a first section to the first structure, the first section has at least one magnetic member; and

coupling a second section to the second structure, the second section has at least one magnetic member; wherein

the first and second sections present negative stiffness caused by magnetic force, thereby canceling at least a part of the positive stiffness of the supporting member.

15. The method of claim 14, wherein the supporting member has a bellow that includes an airtight cavity, and the airtight cavity is pressurized.

16. The method of claim 15, wherein the first and second sections are mounted within the cavity of the bellow.

17. The method of claim 16, further comprising a pressurizing mechanism for controlling pressure within the cavity of the bellow.

18. The method of claim 15, wherein

the first section has a first cylindrical magnetic member,

the second section has a second cylindrical magnetic member, and

the first and second cylindrical magnetic members face with each other at an end thereof at the neutral position.

19. The method of claim 18, wherein each of the first and second cylindrical magnetic members includes a retentive magnetic material.

20. The method of claim 15, wherein

the first section has a first cylindrical magnetic member,

the second section has a second cylindrical magnetic member, and

the first cylindrical magnetic member is provided within the second cylindrical magnetic member.

21. The method of claim 20, wherein each of the first and second cylindrical magnetic members includes a retentive magnetic material.

22. The method of claim 20, wherein the first cylindrical magnetic member includes a retentive magnetic material, and the second cylindrical magnetic member includes a non-retentive magnetic material.

23. The method of claim 15, wherein

the first section has a first cylindrical magnetic member,

the second section has second and third cylindrical magnetic members, and

the first cylindrical magnetic member is provided within the second and third cylindrical magnetic members.

24. The method of claim 23, wherein the first cylindrical magnetic member includes a retentive magnetic material, and each of the second and third cylindrical magnetic members includes a non-retentive magnetic material.

25. The method of claim 15, wherein

the first section has a first cylindrical magnetic member,

the second section has second, third, fourth and fifth cylindrical magnetic members, and

the first cylindrical magnetic member is provided within the second, third, fourth and fifth cylindrical magnetic members.

26. The method of claim 25, wherein

each of the first, second and third cylindrical magnetic members includes a retentive magnetic material,

the first, second and third cylindrical magnetic members have a first, second and third direction of magnetic poles, respectively,

the first, second and third direction of magnetic poles are the same, and

each of the fourth and fifth cylindrical magnetic members includes a non-retentive magnetic material.

27. A method for making an object using a lithography process, wherein the lithography process utilizes the supporting method of claim 14.

28. A method for patterning a wafer using a lithography process, wherein the lithography process utilizes the supporting method of claim 14.

29. A lithography system comprising:

an illumination system that irradiates radiant energy;

a positioning apparatus that disposes a substrate on a path of the radiant energy; and

a system that provides support between a first structure and a second structure, the system including,

a supporting member mounted to the first structure and second structure, the supporting member having positive stiffness with respect to a first direction;

a first section having at least one magnetic member, the first section being coupled to the first structure; and

a second section having at least one magnetic member, the second section being coupled to the second structure; wherein

the first and second sections present negative stiffness caused by magnetic force, thereby canceling at least a part of the positive stiffness of the supporting member.

30. The lithography system of claim 29, further comprising at least one actuator, wherein a driving force of the actuator and a support force generated by the system lie on substantially the same axis.

31. The lithography system of claim 30, wherein the support force generated by the system is substantially perpendicular to the first direction.

32. An object manufactured with the lithography system of claim 29.

33. A wafer on which an image has been formed by the lithography system of claim 29.